

# Memorandum

*Serious drought.  
Help Save Water!*

**To:** Frank Demling  
Albion River Bridge Project Manager

**Date:** April 4, 2018

**File:** 01-40110

**From:** Lena Ashley  
NR Design Branch Chief, E3

**Subject:** **Albion River Bridge Updated Fact Sheet**

## Structure Rehabilitation and Maintenance

The 1944 Albion River Bridge requires extensive and regular maintenance due to its age and the corrosive marine environment where the bridge is located.

In 2017, a maintenance contract was competed which replaced 80% of all the threaded rods and nuts throughout the substructure. Rot, decay and checks in the wooden truss members were filled and sealed with epoxy. Seismic restrainers and seat extenders were anchored to the concrete towers as an interim measure to address seismic vulnerability. Additional work included removal of the AC overlay on the bridge deck and replacement with new AC.

The deterioration in the bridge deck and substructure members and the continually corroding steel bolt connections are indications that the structure has entered a state of decay that has a high potential to increase at an exponential rate. A follow-up 2019/2020 Maintenance contract needed to replace the remaining corroded steel bolt in the substructure and begin replacing them in the superstructure. All rotting and checking wooden members will also be filled and sealed. Caltrans Structure Maintenance & Investigations unit estimates the timber portion of the Albion River bridge has 10, or maybe 20 years of service life remaining and is in an active state of deterioration.

The feasibility of retrofitting the existing bridge is low due to the age of the bridge, its deteriorating condition and the low permit rating of the steel deck main span. Additionally, the structure remains seismically vulnerable and susceptible to tsunami damage. A limitation to the rehabilitation strategy is the inability to widen the bridge deck without additional piers and foundations to provide improved shoulders, upgraded bridge rails and a pedestrian walkway. In 2017, the bridge inspection report shows a corroded sheer ring behind a rested steel strap at the base of the bridge trestle. It is reasonable to assume that the condition of many internal shear rings are in the same corroded condition, greatly compromising the remaining life of the shear ring connections. As a result, the life cycle economic cost of adequate maintenance for the Albion River Bridge does not compare favorably with the cost to replace the bridge with a structure better suited to the environment.

## Hazardous Material associated with the Albion River Bridge

The Bridge was constructed primarily with Douglas fir timbers treated with a wood preservative, which contains arsenic and hexavalent chromium. Studies show the shallow soil adjacent to the concrete footings, and the concrete footing themselves directly beneath the bridge have elevated concentrations

of arsenic, and, to a lesser extent, hexavalent chromium. The arsenic and hexavalent chromium releases are from the wood treatment chemicals leaching into storm water runoff. Once the arsenic reaches the sandy soil beneath the bridge, it appears to travel unimpeded to the shallow groundwater and is dispersed into the environment. Although residential use is not expected under the bridge, contaminants exceed DTSC allowable residential levels and require further action under DTSC's cleanup program.

CHIEF DEPUTY DIRECTOR, et al.

Month Day, Year

Page 3 of 3